

Expanding the Toolbox: Using Discriminant Analysis for Efficiency Program Evaluation

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Overview of the Technique

While regression is used to address many researchable questions in the evaluation of efficiency programs, a variety of other statistical tools can be valuable for investigating specific issues. Discriminant analysis is a multivariate statistical method that can be used for classifying observations into groups and has a wide range of potential applications.

This statistical technique is based on the development of linear combinations that are used to separate observations into two or more classes, for example participants with high and low probabilities of free ridership. Planning for the use of discriminant analysis may help to control evaluation costs.

The Poster Display

This poster introduces the technique, explains the underlying theory, and illustrates its practical applications. The poster is divided into three sections:

- an overview of discriminant analysis;
- a discussion of how to conduct a discriminant analysis; and
- a description of possible applications for efficiency program evaluation, with an example of how this method was used in a recent evaluation.

The overview section provides a broad brush introduction to discriminant analysis, presenting the reasons for selecting this method and foundation for its use.

The middle section of the poster covers the nuts and bolts of conducting a discriminant analysis, including the equations, how to prepare the data and a simplified example with output.

The third section explores possible applications and describes an example of the use of discriminant analysis in a recent evaluation.

The Example

In the example, a component of the evaluation was based on an assessment of the free ridership for survey participants from two separate surveys, one in 2006 and one in 2008. However, due to constraints on the length of the survey conducted in 2008, some of the questions on free ridership were removed from the 2008 survey. Discriminant analysis was used to separate 2008 survey participants into three groups with varying probabilities of free ridership based on the common questions between the 2006 and 2008 surveys.